

CLAIMS

1. A vehicle steering apparatus which uses a steering motor to supply a steering mechanism with steering force corresponding to a steering amount applied to a steering member, comprising:

a reaction force motor for supplying the steering member with steering reaction force;

a current sensor for detecting a motor current of the steering motor; and

a controller capable of performing operations of:

extracting component within a predetermined frequency range out of the motor current detected by the current sensor; and

driving the reaction force motor so as to supply the steering member with steering reaction force corresponding to the extracted component and steering reaction force corresponding to the steering amount.

2. The vehicle steering apparatus according to Claim 1, wherein the controller is further capable of amplifying the extracted component.

3. The vehicle steering apparatus according to Claim 2, wherein the controller amplifies the component with a fixed amplification factor.

4. The vehicle steering apparatus according to Claim 2, which is attached to a vehicle, further comprising a vehicle speed sensor for detecting a running speed of the vehicle, wherein the controller amplifies the component with an amplification factor which increases and decreases on the basis of a vehicle speed detected by the vehicle speed sensor.

5. The vehicle steering apparatus according to Claim 2, wherein the predetermined range is a range between 3 Hz and 15 Hz.

6. The vehicle steering apparatus according to Claim 1, wherein the predetermined range is a range between 3 Hz and 15 Hz.

7. The vehicle steering apparatus according to Claim 1, wherein the predetermined range is fixed.

8. The vehicle steering apparatus according to Claim 1, which is attached to a vehicle, further comprising a vehicle speed sensor for detecting a running speed of the vehicle, wherein the predetermined range increases and decreases on the basis of a vehicle speed detected by the vehicle speed sensor.

9. The vehicle steering apparatus according to Claim 1, wherein the controller is further capable of performing operations of:

setting a target value of steering reaction force which corresponds to the steering amount;

adding to said target value a target value of steering reaction force corresponding to the extracted component,

wherein the controller drives the reaction force motor on the basis of a target value which has been obtained by addition.

10. The vehicle steering apparatus according to Claim 1, wherein the steering member and the steering mechanism are not connected mechanically with each other.

11. A vehicle steering apparatus which uses a steering motor to supply a steering mechanism with steering force corresponding to a steering amount applied to steering means, comprising:

a reaction force motor for supplying the steering means with steering reaction force;

current detecting means for detecting a motor current of the steering motor;

extracting means for extracting component within a predetermined frequency range out of the motor current detected by the current detecting means; and

reaction force motor driving means for driving the reaction force motor so as to supply the steering means with steering reaction force corresponding to the component extracted by the extracting means and steering reaction force corresponding to the steering amount.

12. The vehicle steering apparatus according to Claim 11, further comprising amplifying means for amplifying the component extracted by the extracting means.

13. The vehicle steering apparatus according to Claim 12, wherein the amplifying means amplifies the component with a fixed amplification factor.

14. The vehicle steering apparatus according to Claim 12, which is attached to a vehicle, further comprising a vehicle speed sensor for detecting a running speed of the vehicle, wherein the amplifying means amplifies the component with an amplification factor which increases and decreases on the basis of a vehicle speed detected by the vehicle speed sensor.

15. The vehicle steering apparatus according to Claim 12, wherein the predetermined range is a range between 3 Hz and 15 Hz.

16. The vehicle steering apparatus according to Claim 11, wherein the predetermined range is a range between 3 Hz and 15 Hz.

17. The vehicle steering apparatus according to Claim 11, wherein the predetermined range is fixed.

18. The vehicle steering apparatus according to Claim 11, which is attached to a vehicle, further comprising a vehicle speed sensor for detecting a running speed of the vehicle, wherein the predetermined range increases and decreases on the basis of a vehicle speed detected by the vehicle speed sensor.

19. The vehicle steering apparatus according to Claim 11, further comprising:

means for setting a target value of steering reaction force which corresponds to the steering amount;

adding means for adding to said target value a target value of steering reaction force corresponding to the component extracted by the extracting means,

wherein the reaction force motor driving means drives the reaction force motor on the basis of a target value which has been obtained by addition by the adding means.

20. The vehicle steering apparatus according to Claim 11,

wherein the steering means and the steering mechanism are not connected mechanically with each other.